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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/056,238	01/23/2002	Thomas James Edsall	ANDIP003	7777
22434	7590	04/03/2006	EXAMINER	
BEYER WEAVER & THOMAS LLP P.O. BOX 70250 OAKLAND, CA 94612-0250			SERRAO, RANODHI N	
		ART UNIT		PAPER NUMBER
				2141

DATE MAILED: 04/03/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/056,238	EDSALL ET AL.	
	Examiner	Art Unit	
	Ranodhi Serrao	2141	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) Responsive to communication(s) filed on 20 January 2006.
- 2a) This action is FINAL. 2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) Claim(s) 1,3 and 5-61 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) Claim(s) _____ is/are allowed.
- 6) Claim(s) 1,3 and 5-61 is/are rejected.
- 7) Claim(s) _____ is/are objected to.
- 8) Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on _____ is/are: a) accepted or b) objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) All b) Some * c) None of:
1. Certified copies of the priority documents have been received.
 2. Certified copies of the priority documents have been received in Application No. _____.
 3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) Notice of References Cited (PTO-892)
- 2) Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____.
- 4) Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) Notice of Informal Patent Application (PTO-152)
- 6) Other: _____.

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 20 January 2006 has been entered.

Response to Arguments

2. Applicant's arguments with respect to claims 1, 3, and 5-61 have been considered but are moot in view of the new ground(s) of rejection.

3. The applicant argued in substance the newly added limitations, "wherein (b), (c), and (d) are performed by logic dedicated to and implemented by said port of the network device" and "by said port of the network device" and "wherein the master port is adapted for managing lock requests." However, the new grounds teach these and the added features. See rejections below.

Claim Rejections - 35 USC § 103

4. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

5. Claims 1, 3, 5-11, 13, 16, 17, 54, 55, 56, and 58 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lo et al. (2002/0103943) and Latif et al. (6,400,730).

6. As per claims 1, 54, 55, 56, and 58, Lo et al. teaches a method of implementing storage virtualization on a network device of a storage area network (paragraph 0037), the method comprising: (a) receiving a frame or packet at a port of the network device (paragraph 0090), wherein the network device is a switch, router, iSCSI gateway, or other network node configured to perform a switching function (paragraph 0069); (b) determining that the frame or packet pertains to access of a virtual storage location of a virtual storage unit representing one or more physical storage locations on one or more physical storage units of the storage area network (paragraph 0239); (c) obtaining a virtual-physical mapping between the one or more physical storage locations and the virtual storage location (paragraph 0239); and (d) sending a new or modified frame or packet to an initiator or a target specified by the virtual-physical mapping (paragraphs 0245 and 0415). But fails to teach wherein (b), (c), and (d) are performed by logic dedicated to and implemented by said port of the network device. However, Latif et al. teaches wherein (b), (c), and (d) are performed by logic dedicated to and implemented by said port of the network device (see Latif et al., col. 17, line 34-col. 18, line 7). It would have been obvious to one having ordinary skill in the art at the time of the invention to modify Lo et al. to wherein (b), (c), and (d) are performed by logic dedicated to and implemented by said port of the network device in order to allow the port interfaces provide the conversion from the input frame format to an internal frame format, which can be routed within the apparatus (see Latif et al., abstract).

7. As per claim 3, Lo et al. and Latif et al. teach a method, wherein the virtual storage unit comprises a VLUN or other virtual representation of storage on the storage area network (see Lo et al., paragraphs 0037 and 0422).
8. As per claim 5, Lo et al. and Latif et al. teach a method, wherein the frame or packet received at the port of the network device is a fibre channel frame (see Lo et al., paragraph 0064).
9. As per claim 6, Lo et al. and Latif et al. teach a method, wherein the frame received at the port of the network device is an iSCSI frame (see Lo et al., paragraph 0069).
10. As per claim 7, Lo et al. and Latif et al. teach a method, wherein the frame or packet received at the port of the network device comprises a read or write command (see Lo et al., paragraph 0334).
11. As per claim 8, Lo et al. and Latif et al. teach a method, wherein the frame or packet received at the port of the network device comprises a SCSI read or write command (see Lo et al., paragraph 0336).
12. As per claim 9, Lo et al. and Latif et al. teach a method, wherein determining that the frame or packet pertains to access of a virtual storage location comprises identifying an address of the virtual storage unit in the frame or packet from the initiator (see Lo et al., paragraph 0404).
13. As per claim 10, Lo et al. and Latif et al. teach a method, wherein the address is a destination address (see Lo et al., paragraph 0405).

14. As per claim 11, Lo et al. and Latif et al. teach a method, wherein determining that the frame or packet pertains to access of a virtual storage location comprises identifying an address of the port in a destination address field of the frame or packet from the target (see Lo et al., paragraph 0415).

15. As per claim 13, Lo et al. and Latif et al. teach a method, wherein the virtual-physical mapping is defined by a virtualization model (see Lo et al., paragraph 0404).

16. As per claim 16, Lo et al. and Latif et al. teach a method, the method further comprising: generating a new packet or frame or modifying the received packet or frame in a manner that replaces a source address of the initiator with an address of the port on the network device (see Lo et al., paragraph 0405).

17. As per claim 17, Lo et al. and Latif et al. teach a method, the method further comprising: generating a new packet or frame or modifying the received packet or frame in a manner that replaces a destination address of the port on the network device with a destination address of the virtual storage unit (see Lo et al., paragraph 0407).

18. Claims 1, 12, 14, 18-61 are rejected under 35 U.S.C. 103(a) as being unpatentable over Blumenau et al. (6,260,120) and Latif et al.

19. As per claim 1, Blumenau et al. teaches a method of implementing storage virtualization on a network device of a storage area network (column 8, lines 5-7), the method comprising: (a) receiving a frame or packet at a port of the network device (column 12, lines 9-17), wherein the network device is a switch, router, iSCSI gateway, or other network node configured to perform a switching function (col. 18, lines 35-51

and col. 40, lines 44-53); (b) determining that the frame or packet pertains to access of a virtual storage location of a virtual storage unit representing one or more physical storage locations on one or more physical storage units of the storage area network (column 25, lines 29-49); (c) obtaining a virtual-physical mapping between the one or more physical storage locations and the virtual storage location (column 24, lines 34-55); and (d) sending a new or modified frame or packet to an initiator or a target specified by the virtual-physical mapping (column 30, lines 24-45). But fails to teach wherein (b), (c), and (d) are performed by logic dedicated to and implemented by said port of the network device. However, Latif et al. teaches wherein (b), (c), and (d) are performed by logic dedicated to and implemented by said port of the network device (see Latif et al., col. 17, line 34-col. 18, line 7). It would have been obvious to one having ordinary skill in the art at the time of the invention to modify Blumenau et al. to wherein (b), (c), and (d) are performed by logic dedicated to and implemented by said port of the network device in order to allow the port interfaces provide the conversion from the input frame format to an internal frame format, which can be routed within the apparatus (see Latif et al., abstract).

20. As per claim 12, Blumenau et al. and Latif et al. teach a method, wherein the virtual storage unit is a virtual logical unit and the one or more physical storage units are physical logical units (see Blumenau et al., column 30, lines 24-45).

21. As per claim 14, Blumenau et al. and Latif et al. teach a method, the method further comprising: generating one or more new packets or frames or modifying the received packet or frame in a manner that replaces a destination address of the virtual

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storage unit with one or more destination addresses of the one or more physical storage units (see Blumenau et al., column 12, lines 9-17).

22. As per claim 15, Blumenau et al. and Latif et al. teach a method, the method further comprising: generating a new packet or frame or modifying the received packet or frame in a manner that replaces a source address of a physical storage unit with a source address of the virtual storage unit (see Blumenau et al., column 12, lines 18-26).

23. As per claim 18, Blumenau et al. and Latif et al. teach the mentioned limitations of claim 1 above but fail Blumenau et al. fails to teach a method, wherein (b), (c), and (d) are performed by a processor dedicated to only said port of the network device. However, Latif et al. teaches a method, wherein (b), (c), and (d) are performed by a processor dedicated to only said port of the network device (see Latif et al., col. 18, lines 8-42). It would have been obvious to one having ordinary skill in the art at the time of the invention to modify Blumenau et al. to a method, wherein (b), (c), and (d) are performed by a processor dedicated to only said port of the network device in order to allow the port interfaces provide the conversion from the input frame format to an internal frame format, which can be routed within the apparatus (see Latif et al., abstract).

24. As per claim 19, Blumenau et al. teaches a method, further comprising requesting a lock of the one or more physical storage locations prior to submitting a read or write command to the one or more physical storage locations (see Blumenau et al., column 29, lines 6-30). But fails to teach by said port of the network device. However, Latif et al. teaches by said port of the network device (see Latif et al., col. 17,

line 34-col. 18, line 7). It would have been obvious to one having ordinary skill in the art at the time of the invention to modify Blumenau et al. to by said port of the network device in order to in order to allow the port interfaces provide the conversion from the input frame format to an internal frame format, which can be routed within the apparatus (see Latif et al., abstract).

25. As per claim 20, Blumenau et al. and Latif et al. teach a method, wherein requesting a lock of the one or more physical storage locations comprises requesting a lock of the virtual storage location (see Blumenau et al., column 29, line 57-column 30, line 20).

26. Claim 21 is rejected under 35 U.S.C. 103(a) as being unpatentable over Blumenau et al. and Latif et al. as applied to claims 1 and 19 above, and further in view of Brewer et al. (6,876,656).

27. As per claim 21, Blumenau et al. and Latif et al. teach the mentioned limitations of claims 1 and 19 above but fail to teach a method, wherein requesting a lock of the one or more physical storage locations comprises: sending a lock request to a master port of a network device within the storage area network, wherein the master port is adapted for managing lock requests. However, Brewer et al. teaches a method, wherein requesting a lock of the one or more physical storage locations comprises: sending a lock request to a master port of a network device within the storage area network, wherein the master port is adapted for managing lock requests (see Brewer et al., col. 8, lines 20-60). It would have been obvious to one having ordinary skill in the art at the

time of the invention to modify Blumenau et al. and Latif et al. to a method, wherein requesting a lock of the one or more physical storage locations comprises: sending a lock request to a master port of a network device within the storage area network, wherein the master port is adapted for managing lock requests in order to redirect at least some of the read transaction data frames and the write transaction write data and transfer ready frames in a network so as to bypass a storage manager and pass directly between the client and a storage device via a switch (see Brewer et al., abstract).

28. Claims 22-28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Blumenau et al., Latif et al., and Brewer et al.

29. As per claim 22, Blumenau et al., Latif et al., and Brewer et al. teach a method, further comprising: receiving a lock grant from the master port of the network device within the storage area network (see Blumenau et al., column 12, lines 27-54 and column 29, line 57-column 30, line 20).

30. As per claim 23, Blumenau et al., Latif et al. and Brewer et al. teach a method, wherein the granted lock indicates that at least one of exclusive read and write access to the virtual storage location is granted (see Blumenau et al., column 29, line 57-column 30, line 20).

31. As per claim 24, Blumenau et al., Latif et al., and Brewer et al. teach a method, further comprising: sending a transfer ready message to the initiator when the lock grant is received (see Blumenau et al., column 8, lines 48-65).

32. As per claim 25, Blumenau et al., Latif et al., and Brewer et al. teach a method, further comprising: requesting a release of the granted lock from the master port of the

network device within the storage area network (see Blumenau et al., column 12, lines 27-54 and column 16, lines 50-59).

33. As per claim 26, Blumenau et al., Latif et al., and Brewer et al. teach a method, further comprising: receiving a notification that the granted lock has been released by the master port (see Blumenau et al., column 12, lines 27-54 and column 12, line 66-column 13, line 12).

34. As per claim 27, Blumenau et al., Latif et al., and Brewer et al. teach a method, wherein requesting a release of the granted lock is performed when the read or write command has been successfully completed (see Blumenau et al., column 21, lines 6-42).

35. As per claim 28, Blumenau et al., Latif et al., and Brewer et al. teach a method, wherein the command has been successfully completed when a status indicating that the command was successful is received from the initiator or the target (see Blumenau et al., column 21, lines 6-42).

36. As per claim 29, Blumenau et al. and Latif et al. teach a method, wherein the frame or packet received at a port of the network device comprises a read or write command indicating an amount of memory to be read or written to, the method further comprising: allocating the amount of memory at the network device (see Blumenau et al., column 16, lines 50-59).

37. As per claim 30, Blumenau et al. and Latif et al. teach a method, further comprising: receiving a status from the target after the sending of the new or modified frame or packet to the target (see Blumenau et al., column 11, lines 1-14); and when the

status indicates that the command was successful, de-allocating the amount of memory at the network device (see Blumenau et al., column 32, lines 19-33).

38. As per claim 31, Blumenau et al. and Latif et al. teach a method, wherein the frame or packet received at a port of the network device comprises a read or write command, the method further comprising: receiving a transfer ready signal from the target after the sending of the new or modified frame or packet, the transfer ready signal indicating that the target is ready to receive a transfer of data (see Blumenau et al., column 8, lines 48-65).

39. As per claim 32, Blumenau et al. and Latif et al. teach a method, further comprising: sending a transfer ready signal to the initiator after the sending of the new or modified frame or packet, the transfer ready signal indicating that the network device is ready to receive a transfer of data from the initiator; wherein sending the transfer ready signal to the initiator is performed prior to receiving a transfer ready signal from the target (see Blumenau et al., column 8, lines 48-65).

40. As per claim 33, Blumenau et al. and Latif et al. teach a method, wherein the frame or packet received at a port of the network device comprises a read or write command, the method further comprising: receiving a status after the sending of the new or modified frame or packet, the status indicating whether the command was successful (see Blumenau et al., column 21, lines 6-42).

41. As per claim 34, Blumenau et al. and Latif et al. teach a method, further comprising: sending the status to the initiator (see Blumenau et al., column 21, lines 6-42).

42. As per claim 35, Blumenau et al. and Latif et al. teach a method, further comprising: sending a second new or modified frame or packet to an initiator or a target specified by the virtual-physical mapping (see Blumenau et al., column 30, lines 24-45); receiving a second status after the sending of the second new or modified frame or packet, the second status indicating whether the command was successful (see Blumenau et al., column 21, lines 6-42); merging the status and the second status (see Blumenau et al., column 21, lines 6-42); and sending the merged status to the initiator (see Blumenau et al., column 21, lines 6-42).

43. As per claim 36, Blumenau et al. and Latif et al. teach a method, further comprising: determining from the status whether the command was successful (see Blumenau et al., column 21, lines 6-42); and re-sending the new or modified frame or packet when it is determined that the command was not successful (see Blumenau et al., column 21, lines 43-58).

44. As per claim 37, Blumenau et al. and Latif et al. teach a method, further comprising: sending the status to the initiator when it is determined that the command was successful (see Blumenau et al., column 21, lines 6-42).

45. As per claim 38, Blumenau et al. and Latif et al. teach a method, wherein the new or modified frame or packet comprises data (see Blumenau et al., column 12, lines 9-17).

46. As per claim 39, Blumenau et al. and Latif et al. teach a method, wherein the new or modified frame or packet comprises a read or write command (see Blumenau et al., column 8, line 48-65).

47. As per claim 40, Blumenau et al. and Latif et al. teach a method, wherein the frame or packet received at a port of the network device comprises data, the method further comprising: storing the data in a memory location; wherein re-sending the new or modified frame or packet comprises: obtaining the data from the memory location; and sending a new or modified frame or packet including the obtained data to the initiator or the target specified by the virtual-physical mapping (see Blumenau et al., column 30, lines 24-45).

48. As per claim 41, Blumenau et al. and Latif et al. teach a method, further comprising: receiving data from the target specified by the virtual-physical mapping; and storing the data in a memory location (see Blumenau et al., column 30, lines 24-45).

49. As per claim 42, Blumenau et al. and Latif et al. teach a method, wherein re-sending the new or modified frame or packet comprises: obtaining the data from the memory location; and sending a new or modified frame or packet including the obtained data to the initiator specified by the virtual-physical mapping (see Blumenau et al., column 30, lines 24-45).

50. As per claim 43, Blumenau et al. and Latif et al. teach a method, wherein re-sending the new or modified frame or packet comprises sending the new or modified frame or packet to an alternate target specified by the virtual-physical mapping, the method further comprising: receiving alternate data from the alternate target specified by the virtual-physical mapping; and comparing the alternate data with the data stored in the memory location (see Blumenau et al., column 8, lines 48-65).

51. As per claim 44, Blumenau et al. and Latif et al. teach a method, further comprising: employing a mirror algorithm to select the alternate target (see Blumenau et al., column 9, lines 10-24).

52. As per claim 45, Blumenau et al. and Latif et al. teach a method as recited in claim 1, wherein the frame or packet received at the port of the network device and the new or modified frame or packet sent by the network device are compatible with a standard protocol (see Blumenau et al., column 9, lines 25-49).

53. As per claim 46, Blumenau et al. and Latif et al. teach a method, wherein the standard protocol is SCSI (see Blumenau et al., column 9, lines 25-49).

54. As per claim 47, Blumenau et al. and Latif et al. teach a method, wherein the frame or packet received at the port of the network device and the new or modified frame or packet sent by the network device are compatible with a type of traffic to be carried by the frames or packets (see Blumenau et al., column 9, lines 25-49).

55. As per claim 48, Blumenau et al. and Latif et al. teach a method, wherein the type of traffic is fibre channel (see Blumenau et al., column 9, lines 25-49).

56. As per claim 50, Blumenau et al. and Latif et al. teach a method, wherein the frame or packet received at the port of the network device comprises a SCSI read command and the new or modified frame or packet sent by the network device comprises a SCSI read command (see Blumenau et al., column 34, lines 20-32).

57. As per claim 51, Blumenau et al. and Latif et al. teach a method, wherein the frame or packet received at the port of the network device comprises a SCSI write

command and the new or modified frame or packet sent by the network device comprises a SCSI write command (see Blumenau et al., column 34, lines 33-47).

58. As per claim 52, Blumenau et al. and Latif et al. teach a method, wherein the frame or packet received at the port of the network device comprises a read command and the new or modified frame or packet sent by the network device comprises a read command (column 34, lines 20-32).

59. As per claim 53, Blumenau et al. and Latif et al. teach a method, wherein the frame or packet received at the port of the network device comprises a write command and the new or modified frame or packet sent by the network device comprises a write command (see Blumenau et al., column 34, lines 33-47).

60. As per claim 57, Blumenau et al. teaches a network device for use in a storage area network supporting virtualization, the network device including a plurality of ports, wherein at least some of said ports comprise (i) an interface for sending and receiving packets or frames on a storage area network (see Blumenau et al., column 10, lines 15-30); wherein the network device is a switch, router, iSCSI gateway, or other network node configured to perform a switching function (see Blumenau et al., col. 18, lines 35-51 and col. 40, lines 44-53); and said logic for identifying frames or packets pertaining to access of a virtual storage location of a virtual storage unit representing one or more physical storage locations on one or more physical storage units of the storage area network (see Blumenau et al., col. 8, lines 48-65 and column 12, line 66-column 13, line 21); and implementing a virtual-physical mapping between the one or more physical storage locations and the virtual storage location (see Blumenau et al., column 10, lines

42-67). But fails to teach logic dedicated to and implemented by said port of the network device. However, Latif et al. teaches logic dedicated to and implemented by said port of the network device (see Latif et al., col. 17, line 34-col. 18, line 7). It would have been obvious to one having ordinary skill in the art at the time of the invention to modify Blumenau et al. to logic dedicated to and implemented by said port of the network device in order to allow the port interfaces provide the conversion from the input frame format to an internal frame format, which can be routed within the apparatus (see Latif et al., abstract).

61. As per claim 59, Blumenau et al. and Latif et al. teach a method, wherein the new or modified frame or packet includes at least one of a source address and destination address obtained from the virtual-physical mapping (see Blumenau et al., column 12, lines 9-17 and column 12, lines 18-26).

62. As per claim 60, Blumenau et al. and Latif et al. teach a method, wherein the received frame or packet includes a source address and destination address, and wherein the obtained information includes at least one of the source address and the destination address (see Blumenau et al., column 12, lines 9-17 and column 12, lines 18-26).

63. As per claim 61, Blumenau et al. and Latif et al. teach a method wherein sending a lock request to another port of a network device within the storage area network comprises: sending a lock request to another port of a switch, router, iSCSI gateway, or other network node configured to perform a switching function (see Blumenau et al.,

column 19, lines 4-31).

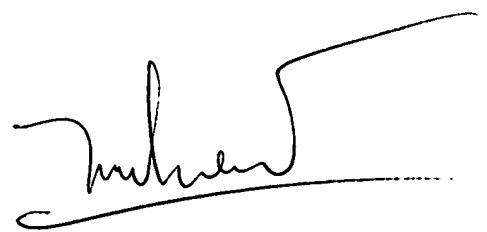
64. Claim 49 is rejected under 35 U.S.C. 103(a) as being unpatentable over Blumenau et al. and Latif et al. as applied to claims 1, 45, and 47 above, and further in view of Lo et al. Blumenau et al. and Latif et al. teach the mentioned limitations of claims 1, 45, and 47 above but fail to teach a method, wherein the type of traffic is iSCSI. However, Lo et al. teaches a method, wherein the type of traffic is iSCSI (see Lo et al. paragraph 0128). It would have been obvious to one having ordinary skill in the art at the time of the invention to modify the above limitation to add a method, wherein the type of traffic is iSCSI in order to employ the appropriate transport layer and upper-layer protocol combinations in the backbone. Also allowing over gigabit Ethernet based networks (see Lo et al. paragraph 0121).

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ranodhi Serrao whose telephone number is (571)272-7967. The examiner can normally be reached on 8:00-4:30pm, M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Rupal Dharia can be reached on (571)272-3880. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published

applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

A handwritten signature in black ink, appearing to read "Jennifer". It is written in a cursive style with a long horizontal stroke on the right side.